DOCUMENT RESUME

ED 348 334 SP 033 329

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TITLE Student-Generated Challenges to Instructor's Answers on Tests.

PUB DATE May 91

NOTE 13p.; Paper presented at the Annual Meeting of the Midwestern Psychological Association (May 4, 1991).

PUB TYPE Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.

DESCRIPTORS Answer Keys; *Convergent Thinking; *Error Correction; *Feedback; Higher Education; Instructional Innovation; Logical Thinking; *Multiple Choice Tests; Scoring Formulas; Self Esteem; *Student Development; *Test Use

ABSTRACT

Tests are intended to assess performance of students. However, tests can also be used as an educational tool. Current patterns in education have produced a group of students with weak learning skills, limited confidence in their own abilities, an underlying hostility or distrust of the educational system, and an inhibited attitude towards self-help activities. This paper describes a straightforward technique to reduce these patterns. The method called "Challenge" encourages students to engage in self-directed analysis of their mistakes on objective tests. Since there can be genuine disagreement about answers to multiple-choice questions, students are asked to defend their answers on tests in writing by the start of the next class after the test. Credit is given on the basis of the quality of logic or evidence directly stated in the challenge. There are numerous pedagogical and psychological benefits that can result. The method inhibits alienating effects of objective tests and large classes. The process encourages greater student understanding of course content, improves methods of test taking, and enhances conceptual abilities. Self esteem and a sense of personal empowerment may also increase. (Author/LL)

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Student-Generated Challenges to Instructor's Answers on Tests

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Presented at Midwestern Psychological Association Meeting
May 4, 1991

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Running head: STUDENT-GENERATED CHALLENGES

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Abstract

Tests are intended to assess performance of students. However, tests can also be used as an educational tool. This paper describes a method encouraging students to engage in self-directed analysis of their mistakes on objective tests. There are numerous pedagogical and psychological benefits that can result. The method inhibits alienating effects of objective tests and large classes. The process encourages greater student understanding of course content, improves their methods of test taking, and enhances their conceptual abilities. It also can enhance their self image and increase their sense of personal empowerment. It also improves the abilities of course delivery and test construction. Benefits, costs and evaluation of success of the method are discussed.

Student-Generated Challenges to Instructor's Answers on Tests

Wm. McKeachie, the guiding force behind improving teaching in psychology has described testing (1978) as "one of the most frustrating aspects of the course for many students, and (tests) usually arouse a great deal of overt and covert aggression." There are a number of reasons for this pattern. One set of factors involves student's learning history. Students have been conditioned to the extrinsic reward of the grade rather than learning the material. Their prior educational experience has emphasized rote memorization rather than conceptual learning. They have little experience in application of concepts to novel examples (or their own lives). They have been conditioned to be passive receptors of education rather than active participants in the learning process.

Personality factors also shape their actions. College students often have shaky or negative self-concepts, based on prior negative experiences, especially lower division students. Thus, they feel partially helpless and often hostile to the perceived agents of their weakness. It is not an accident that schools are so often "trashed" by vandals. They are likely to have an "external locus of control" in Rotter's sense (1966), and therefore, unlikely to engage in self-help activities. The weaker the students or the weaker their personal background, the more this self-defeating pattern holds. The negative cycle inhibits the learning of effective study and coping styles. Thus, their experience of failure and inadequacy escalates as material becomes more difficult in later stages of their academic career.

Of course, many are dismissed for poor performance and an another large group merely withdraws to escape the punishing experiences of the academic environment. Students from weaker school systems or from poverty-based environments are least able to cope with these tendencies. Even survivors are significantly deprived of the benefits of a stimulating learning environment.

The size of class interacts with these factors such that larger classes intensify the problems. They inhibit the personal interaction that can break down self-limiting student habits or self-reflexive attitudes. Unfortunately, the population most at risk (lower division students) is also the group that is most likely to have large enrollment sections. Simultaneously, instructors receive the least feedback from students regarding successful transmission and reception of material or the clarity of tests. These are also the groups most likely to have objective, machine-scored tests.

To summarize, current patterns in education have produced a group of students with weak learning skills, limited confidence in their own abilities, an underlying hostility or distrust of the educational system, and inhibition of self-help activities. Scale factors cause class formats that further degrade the successful learning and growth process in students. This paper describes a straightforward technique to reduce these patterns.

Method

The "Challenge" method is part of a total course design intended to help students regain a self-directed, goal-oriented, pro-active style of behavior. It was primarily intended for large enrollment, entry level classes but is being used in all classes in which objective tests are used. The course approach emphasizes psychological material as a set of tools for successfully coping with academic and non-academic tasks. The goal is to avoid the compartmentalizing of material perceived to be esoteric and irrelevant to student lives. Thus, tests serve the dual functions of assessment and training.

Tests combine objective items (mostly multiple choice), essay and short answer. Students take the test and retain the question sheets. They are told to mark their choices on the question sheet. They receive answer keys to the test, on leaving. This allows them to immediately check their answers. They get very specific instructions (see Appendix A) about how to submit written support of the questions for which they feel they deserve at least partial credit. These "challenges" are due the following class period, which is at least two days after the test. Credit is awarded, based on the quality of the logic or evidence that is noted in their challenge. They get written feedback regarding the logical or evidential problems in the challenge. Special effort is made to affirm the use of suitable logic or evidence. Suggestions are given to students as to how to respond to similar questions in the future. When tests are reviewed in class, the proper comments are mentioned to provide modeling examples for other students.

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Benefits

Student Skills Enhancement

1) It encourages immediate review of the test, increasing the retention of accurate material and "deleting" the knowledge of items that were missed. With delays in feedback and poor original knowledge, the mistaken knowledge becomes co-equal or dominant with right answers.

2) It encourages retention of the correct answers as students compare their answer with that of the answer key.

3) It encourages student analysis of their test taking style. Naturally and with instructor aid, students gain insight into repetitive styles (e.g., not reading all the responses, centering on key word without considering modifiers, missing, etc.). They come to realize how that affects their response styles.

4) It encourages logical analysis as they gain sensitivity to the differences between examples and general cases, between exceptions and the typical case. They learn to logically examine the meaning of terms that are not immediately familiar but are subject to logical analysis. This style, that I call "attack skill", is regularly illustrated and shaped in the lecture sessions. Students are given chances to expand their formal operational capacity in Piaget's terms.

5) It encourages students to reduce reliance on memorization. As they practice skills in supporting answers, they develop more of the skills to engage in elaborative rehearsal and analysis.

6) It develops their writing skills since they also receive feedback on composition and organizational skills shown in their challenges.

Student Psychosocial Enrichment

1) It acknowledges and responds to the students' perceptions of inequity in the test content or process. This is especially important since there are many students who tend to use external attributions for their own performance difficulties. It recognizes that content may inadvertently be ambiguous or otherwise flawed. This reduces the conditioned tendency to frame the discussion of test content in an adversarial context. The instructor is acknowledging the possibility of his/her error and proposing that students control the remedies.

2) It rewards those students who take initiative in seeking to improve their condition and they provide successful role models for students who are at the threshold for engaging in this positive behavior style. 3) It rewards convergent thinking by establishing the premise that there may be more than one valid answer to a question or way of looking at an issue. This is one of the strongest points I make with students.

4) It causes students to regain a sense of personal empowerment as students recognize that course outcomes are not completely controlled by impersonal, omnipotent outside forces. As they engage in what I refer to as a "self help" method, they begin to redefine themselves as active rather than passive agents. They begin to take control.

5) It reawakens the positive aspect of egocentric thinking as they begin to believe in their special capacities once more.

Course Improvement

1) It improves tests, because it breaks the egocentric barrier that blocks instructors from recognizing how students perceive questions. The instructor becomes more and more adept at anticipating the problems that a question will produce. It leads to clearer, more direct questions and distractors that are clearly either correct or wrong.

2) It educates instructors to the types of ineffective or immature student cognitive processes that impede communication.

3) It awakens instructors to the impact of the power imbalance that is particularly acute in large classes.

4) It reduces class time normally devoted to the public jousting by those students who wish to gain extra points or argue with instructors. Costs

1) It takes a great deal of time to respond properly to the challenges, especially from weaker students. You have to be able to penetrate their mental processes to recognize the flaws. As Piaget said, you can learn more about cognitive development from errors than from proper responses. You then must respond in a form that is compatible with their developmental stage.

2) It also takes great patience and tolerance, since many of the challenges, during the early stage, are grossly illogical or display inability to comprehend simple concepts. It creates a tendency to respond in a limited, concrete, autocratic way rather than a supportive instructive way that focuses on proper process not improper content.

3) Providing extra credit always raises the spector of grade inflation or inequity to non-responding students. The proposed response is that the

challenges are designed to achieve important course-related goals and the students earn the points by their work. Moreover, when grades are based on absolute standards rather than a curve, non-respondents are not penalized; they are merely paying an "opportunity cost."

4) Allowing student retention of tests creates a major time and energy expenditure as instructors are obliged to create new tests or large pools of items from which to select test questions. Conversely, the method improves the test writing capacity. Tests are always a sample of the virtually limited universe of possible items. A test that samples the upper level abilities of comprehension, application, and evaluation can be modified easily without loss of precision.

5) Students who write inadequate or unrewarded challenges are sometimes unwilling to respond to the suggestions and submit additional challenges. This inhibits the effectiveness of the technique and may leave them with a further sense of weakness or perceived inequity.

Evaluation

The technique has been used for a number of years. Course evaluations single out the method as a valuable motivational tool. The course delivery system clearly is enhanced in terms of clearer and fairer tests. The ratings of the fairness of the tests have improved greatly and ratings of the ambiguity of tests has been reduced. The students perceive the technique as part of an overall method to enhance their learning, which increases their receptivity to other parts of the course. They commonly say that they may not have learned all that they could but that they were given the opportunities that they needed.

A continuing problem is that a disproportionate number of weaker students fail to use the method (or other self-help options). Preliminary research (Greenwood, 1991) has examined the relationship of self-esteem and locus of control to the use of extra credit points.

It shows that students with an external locus of control, are more likely to seek to earn points but low esteem students are less likely to do so. The most extra credit points are earned by high self-esteem, externals. They may perceive the need to go outside the formal system to get help and are comfortable enough to do it. A larger effort to map these patterns in terms of grades achieved and change over a semester's work, will hopefully clarify the issues and lead to more effective methods to encourage all weaker students.

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Appendix A

Challenge Policies

There can be genuine disagreement about the answers to multiple-choice questions. If you believe that you can defend your answers on tests, you may do so IN WRITING, by the START of the NEXT class after the test. You will get an answer key as you leave the test and so will know immediately which items I say you missed. Credit will be given on the basis of the quality of your logic or evidence directly stated in your challenge. If the key is wrong, you get full credit for a correct answer and may earn additional credit for a challenge on such an item.

Specific Challenge Format

1) Write the question and your response. THIS IS MANDATORY!!!

2) Describe why YOUR answer deserves credit. You must use course material, logic, or references from other courses.

3) Attacking my answer is only useful if you are defending a single answer, when the keyed answer is "ALL OF THE ABOVE." Then, you MUST show why one of the other answers is wrong, since I already agree that your answer is true.

4) When the question involves a comparison (BEST, LEAST, WORST, etc.), you must not only show your answer fits, but also why it is BETTER than the other response choices.

5) Don't just restate the answer or say it's right because you believe it's right. You MUST use evidence or logic.

6) You will be allowed up to five challenges per test.